

CLAIMS

What is claimed is:

- 1 1. A document feeder device comprising:
2 a frame; and
3 at least one cantilevered roller shaft for advancing a document, wherein an
4 unsupported end of the at least one cantilevered roller shaft floats.
- 1 2. The device of claim 1 wherein a supported end of the at least one cantilevered
2 roller shaft is supported at two support locations located outside a document path,
3 wherein the document can be appropriately fed.
- 1 3. The device of claim 1 wherein a need for a rigid frame that directly supports the
2 unsupported end is eliminated.
- 1 4. The device of claim 1 wherein the frame further comprises a main portion and
2 front portion, and wherein the at least one cantilevered roller shaft is coupled to the main
3 portion such that the at least one cantilevered roller shaft does not rely on the front
4 portion for support.
- 1 5. The device of claim 1 wherein at least one gimbal roller is coupled to the at
2 least one cantilevered roller shaft.
- 1 6. The device of claim 1 further comprising a second roller shaft coupled to the
2 frame.

1 7. The device of claim 6 wherein the second roller shaft is cantilevered and
2 wherein a second unsupported end of the second cantilevered roller shaft floats.

1 8. The device of claim 7 wherein a second supported end of the second roller
2 shaft is supported at two second support locations located outside a document path,
3 wherein the document can be appropriately fed.

1 9. The device of claim 6 wherein at least one gimbal roller is coupled to the
2 second roller shaft.

1 10. A document feeder device comprising:
2 a frame; and
3 at least one cantilevered roller shaft for advancing a document, wherein the at
4 least one cantilevered roller shaft comprises a distal end and a proximal end, and wherein
5 the proximal end is coupled to the frame such that the distal end floats.

1 11. The device of claim 10 wherein a need for a rigid frame that directly supports
2 the distal end is eliminated.

1 12. The device of claim 10 wherein the at least one cantilevered roller shaft is
2 supported at two support locations at the proximal end, wherein the two support locations
3 are located outside a document path.

1 13. The device of claim 10 wherein the frame further comprises a main portion
2 and front portion, and wherein the at least one cantilevered roller shaft is coupled to the

3 main portion such that the at least one cantilevered roller shaft does not rely on the front
4 portion for support.

1 14. The device of claim 10 wherein at least one gimbal roller is coupled to the at
2 least one cantilevered roller shaft.

1 15. The device of claim 10 further comprising a second roller shaft coupled to the
2 frame, the second roller shaft having a second distal end and a second proximal end.

1 16. The device of claim 15 wherein the second roller shaft is cantilevered and is
2 coupled to the frame such that the second distal end floats.

1 17. The device of claim 16 wherein the second roller shaft is supported at two
2 support locations at the second proximal end, wherein the two support locations are
3 located outside a document path.

1 18. The device of claim 16 wherein the frame further comprises a main portion
2 and front portion, and wherein the second roller shaft is coupled to the main portion such
3 that the second roller shaft does not rely on the front portion for support.

1 19. The device of claim 15 wherein at least one gimbal roller is coupled to the
2 second roller shaft.

1 20. A printer system comprising:
2 a frame; and

3 at least one cantilevered roller shaft for advancing a document, wherein the at
4 least one cantilevered roller shaft comprises a distal end and a proximal end, wherein the
5 proximal end is coupled to the frame such that the distal end floats.

1 21. The system of claim 20 wherein a need for a rigid frame that directly supports
2 the distal end is eliminated.

1 22. The system of claim 20 wherein the at least one cantilevered roller shaft is
2 supported at two support locations at the proximal end, wherein the two support locations
3 are located outside a document path.

1 23. The system of claim 20 wherein the frame further comprises a main portion
2 and front portion, and wherein the at least one cantilevered roller shaft is coupled to the
3 main portion such that the at least one cantilevered roller shaft does not rely on the front
4 portion for support.

1 24. The system of claim 20 wherein at least one gimbal roller is coupled to the at
2 least one cantilevered roller shaft.

1 25. The system of claim 20 further comprising a drive device coupled to the
2 frame, wherein the drive device rotates the at least one shaft to advance the document.

1 26. The system of claim 20 further comprising a second roller shaft coupled to
2 the frame, the second roller shaft having a second distal end and a second proximal end.

1 27. The system of claim 26 wherein the second roller shaft is cantilevered and is
2 coupled to the frame such that the second distal end floats.

1 28. The system of claim 27 wherein the second roller shaft is supported at two
2 support locations at the second proximal end, wherein the two support locations are
3 located outside a document path.

1 29. The system of claim 27 wherein the frame further comprises a main portion
2 and front portion, and wherein the second roller shaft is coupled to the main portion such
3 that the second roller shaft does not rely on the front portion for support.

1 30. The system of claim 26 wherein at least one gimbal roller is coupled to the
2 second roller shaft.

1 31. The system of claim 26 further comprising a drive device coupled to the
2 frame, wherein the drive device rotates the second roller shaft to advance the document.

1 32. A method for feeding a document through a printer, the method comprising
2 the steps of:

3 (a) providing at least one cantilevered roller shaft in the printer for advancing the
4 document; and

5 (b) coupling a supported end of the at least one cantilevered roller shaft to a frame
6 of the printer such that an unsupported end of the at least one cantilevered roller shaft
7 floats.

1 33. The method of claim 32 further comprising the steps of:

2 (c) providing at least one roller coupled to the at least one cantilevered roller
3 shaft;

4 (d) inserting the document in a document path of the printer until the document
5 reaches the at least one roller; and

6 (e) rotating the at least one roller to advance the document along the paper path.

1 34. The method of claim 33 further comprising the step of (f) removing the
2 document from the document path.

1 35. The method of claim 32 further comprising the step of (c) providing a second
2 roller shaft for advancing the document.

1 36. The method of claim 35 further comprising the step of (d) coupling the
2 second roller shaft to the frame of the printer.

1 37. The method of claim 35 further comprising the step of (d) coupling a second
2 supported end of the second roller shaft to the frame of the printer such that a second
3 unsupported end of the second cantilevered roller shaft floats.

1 38. The method of claim 36 further comprising the steps of:

2 (e) providing at least one roller coupled to the at least one cantilevered roller
3 shaft;

4 (f) providing at least one second roller coupled to the second roller shaft;

5 (g) inserting the document in a document path of the printer until the document
6 reaches the at least one roller and the at least one second roller; and

7 (h) rotating the at least one roller and the at least one second roller to advance the
8 document along the paper path.

1 39. The method of claim 38 further comprising the step of (i) removing the
2 document from the document path.

1 40. A method for feeding a document through a printer, the method comprising
2 the steps of:

3 (a) providing at least one cantilevered roller shaft in the printer for advancing the
4 document, wherein the at least one cantilevered roller shaft comprises a distal end and a
5 proximal end; and

6 (b) coupling the proximal end to a frame of the printer such that the distal end
7 floats.

1 41. The method of claim 40 further comprising the steps of:

2 (c) providing at least one roller coupled to the at least one cantilevered roller
3 shaft;

4 (d) inserting the document in a document path of the printer until the document
5 reaches the at least one roller; and

6 (e) rotating the at least one roller to advance the document along the paper path.

1 42. The method of claim 41 further comprising the step of (f) removing the
2 document from the document path.

1 43. The method of claim 40 further comprising the step of (c) providing a second
2 roller shaft for advancing the document, wherein the second roller shaft comprises a
3 second distal end and a second proximal end.

1 44. The method of claim 43 further comprising the step of (d) coupling the
2 second roller shaft to the frame of the printer.

1 45. The method of claim 43 further comprising the step of (d) coupling the
2 second proximal end to the frame of the printer such that the second roller shaft is
3 cantilevered and the second distal end floats.

1 46. The method of claim 44 further comprising the steps of:

2 (e) providing at least one roller coupled to the at least one cantilevered roller
3 shaft;

4 (f) providing at least one second roller coupled to the second roller shaft;

5 (g) inserting the document in a document path of the printer until the document
6 reaches the at least one roller and the at least one second roller; and

7 (h) rotating the at least one roller and the at least one second roller to advance the
8 document along the paper path.

1 47. The method of claim 46 further comprising the step of (i) removing the
2 document from the document path.